

**ALD REACTOR AND METHOD WITH CONTROLLED WALL
TEMPERATURE**

Abstract of the Disclosure

The present invention relates to improved methods and apparatus for atomic
5 layer deposition (ALD) of thin films on substrates such as wafers and flat panel
displays. The invention provides an ALD reactor comprising a first temperature
regulating system to control the temperature of the substrate and a second temperature
regulating system to independently control the temperature of the reaction chamber
walls. The invention also provides a method for ALD of a film onto a substrate in a
10 reaction chamber, in which the temperature of the substrate is maintained to maximize
ALD on the substrate while the temperature of the reaction chamber walls is set to
minimize film growth thereon, whether by ALD, condensation, physisorption or thermal
decomposition. The temperature of the walls may be maintained at the same
15 temperature as the substrate, or higher or lower than the substrate temperature,
depending upon the particular reaction being used.

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